

# **Logistics Systems Support Branch**

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# Overview



- **MLSS Mission**
- **Organizational Structure**
- **Activities**
- **Summary**





# Logistics Systems Support Branch



- **ASMSO – Established IAW AFI 21-105**
  - Governs activities of Air Force Offices
    - AF Corrosion Prevention & Control Office (CPCO) - Robins AFB
    - AF Nondestructive Inspection Office (NDIO) - Tinker AFB
    - AF Advanced Composite Office (ACO) - Hill AFB
- **Coating and Technology Integration Office - WPAFB**
  - Complements AF Offices, not governed by AFI 21-105
  - Managed by ASMSO for maximum integration





# **AFI 21-105 Mission**

## **Corrosion, NDI, Advanced Composites**



- **Ensure AF has & maintains viable sustainment program in the areas of Corrosion Prevention & Control, Nondestructive Inspection and Advanced Composites**
- **Engineering authority for 7 general series T.O.s**
- **Influence the design of new weapon systems**
- **Provide leadership to maintenance, operational and technical communities in functional areas**



# **(AFI 21-105) Mission - Con't**

## **Corrosion, NDI, Advanced Composites**



- **Transition new technology into field maintenance activities**
- **Conduct projects to enhance state of art**
- **Engineering authority for centrally procured NDI equipment**
- **Internal AF design/manufacturing engineering capability for advanced composites - component redesigns**

**Staff: 23 civilian engineers/techs/admin; 4 officers; 4 enlisted**

### **Scope**

**Aircraft  
Support Equip**

**Missiles  
Munitions**

**Vehicles  
Space**



# Coatings Technology Integration Office Mission



- Engineer (Integrate) new coatings systems, processes and equipment into new aircraft coating system capability
- Transition advanced, environmentally qualified products into everyday use
- Quick reaction troubleshooting for field problems on new coating systems
- Staff: 2 Officers, 2 gov't civilian engineers, 20 contractors
- Scope: Aircraft coating systems

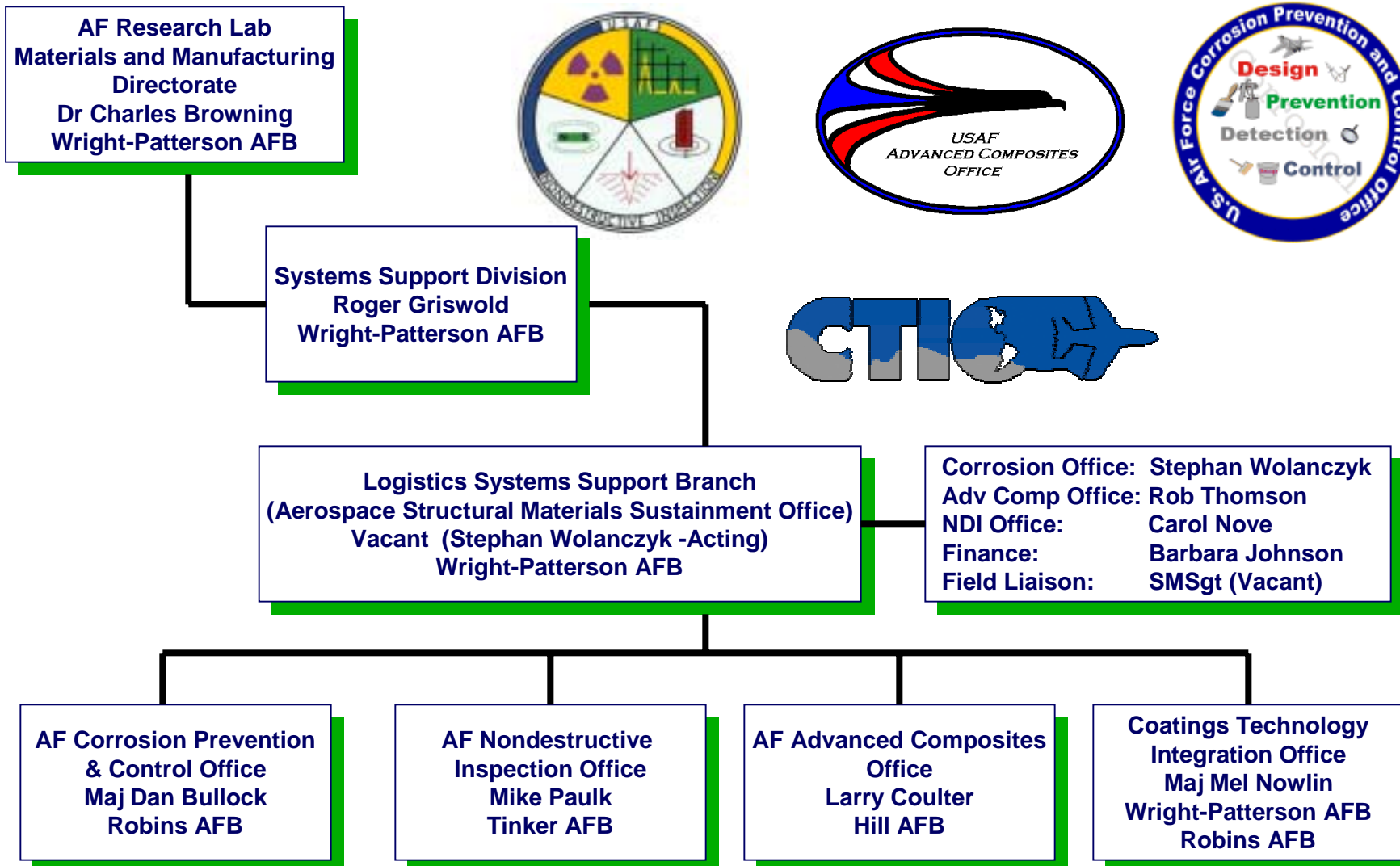
Surface prep  
Topcoats  
Equipment

Conversion Coatings  
Cleaners  
Training

Primers  
De-paint techniques, equipment  
& materials



# Logistics System Support





# AF CPCO FY00 Programs



Objective	Activity	Customer
<b><i>Provide Engineering Assistance</i></b>		
	Mobile Bomb Renovation System	Munitions & Environmental
	X-It Prekote Operational Test Program	MAJCOMs, ALCs, SPDs
	Aqueous Parts Washer Study	AF Corrosion Personnel
	Quick-Response C-21 Corrosion Eval	C-21 SPD, ALCs
	Corrosion Prevention Advisory Boards	SPDs, Corrosion Mangers
<b><i>Survey of MAJCOM Weapon System Corrosion Programs</i></b>		
	AMC Corrosion Survey Completed	AMC
	Space Command Survey underway	AFSPC
	PACAF, USAFE in FY01	PACAF, USAFE
<b><i>Manage Technical Orders</i></b>		
	TO 1-1-8 Major Update Completed	AF Corrosion Personnel
	TO 1-1-4 Interim Update Completed	AF Corrosion Personnel
	TO 1-1-691 Operational Supplement	AF Corrosion Personnel
<b><i>Support and Provide Corrosion Prevention &amp; Control Training</i></b>		
	Corrosion CBT Program	Unit Maintainers
	A/C Wash Video	Unit Maintainers
<b><i>Technology Transfer &amp; Interchange</i></b>		
	Powder Coatings Test & Implementation	ALCs, AF Corrosion Personnel
	Joint Non-Chrome Primer Fight Test	SPDs, ALCs
	USAF 2000 Corrosion Conference	AF Corrosion Personnel
	Joint Low-VOC CARC Demonstration	Ground Equipment Customers





# AF CPCO Technical Orders



- Manage five T.O.s
- **TOP CUSTOMER NEED:** Accurate, up-to-date, clear T.O.s
- Status
  - Major update to T.O. 1-1-8 completed, awaiting publication
- Next requirements
  - T.O. 1-1-4:
    - Remove obsolete content, update remainder
    - Rescind T.O. 1-1-4, & incorporate content in T.O. 1-1-8
  - T.O. 1-1-691 (currently joint with Navy and Army)
    - Update content (conflicting and out-of-date)
    - Republish as AF-only T.O., separate from Navy and Army, to improve management



# AF CPCO Technical Orders



- **T.O. 1-1-4** Exterior Finishes, Insignia & Markings, Applicable to USAF Aircraft
- **T.O. 1-1-8** Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment
- **T.O. 1-1-686** Desert Storage Preservation and Process Manual For Aircraft, Aircraft Engines, and Aircraft Auxiliary Power Unit Engines
- **T.O. 1-1-689** Avionics Cleaning and Corrosion Prevention/Control
- **T.O. 1-1-691** Aircraft Weapon Systems Cleaning and Corrosion Control  
(NAVAIR 01-1A-509, TM 1-1500-344-23)



# Command Corrosion Surveys



- **Survey MAJCOM Corrosion Prevention and Control Operations/Programs**
- **Air National Guard survey Jan 00**
  - 7 locations
  - F-15, F-16, KC-135, C-5, C-130, A-10
- **Air Mobility Command (AMC) survey Aug 00**
  - 4 locations
  - C-5, KC-135, C-17, C-130
- **AF Space Command (AFSPC) survey underway**
  - First ever. 12 locations; CONUS, Atlantic, and Pacific
- **PACAF and USAFE surveys are due in FY 01**



# AF NDIO FY00 Programs



## Objective

## Activity

## Customer

### *Provide Engineering Assistance*



Probability of Detection (POD) Pilot Study  
Field Assessments  
Crack Monitoring System  
X-Ray Equipment Support  
Aging Aircraft Working Group

SPDs, MAJCOMs, ALCs  
MAJCOMs, ANG  
AFRL, MAJCOMs, ALCs, SPDs  
Kadena AB, Japan  
AFRL, MAJCOMs, ALCs, SPDs

### *Centrally Procured Equipment Support*



Evaluation of Xylon X-Ray System  
Panoramic X-Ray Commercial Item Description (CID)  
Revised Fluorescent Penetrant CID  
X-Ray Film Processor CID

AF, ANG, AFRC, ALCs, FMS  
AF, ANG, AFRC, ALCs, FMS  
AF, ANG, AFRC, ALCs, FMS  
AF, ANG, AFRC, ALCs, FMS

### *Manage Technical Orders*

TO 33B-1-1 Revision

AF, ANG, AFRC, ALCs, FMS

### *Support and Provide NDI Training*

Computer Based Training  
NDI training and Certification

AF NDI Personnel  
AF, ANG, AFRC, ALCs

### *Technology Transfer & Interchange*

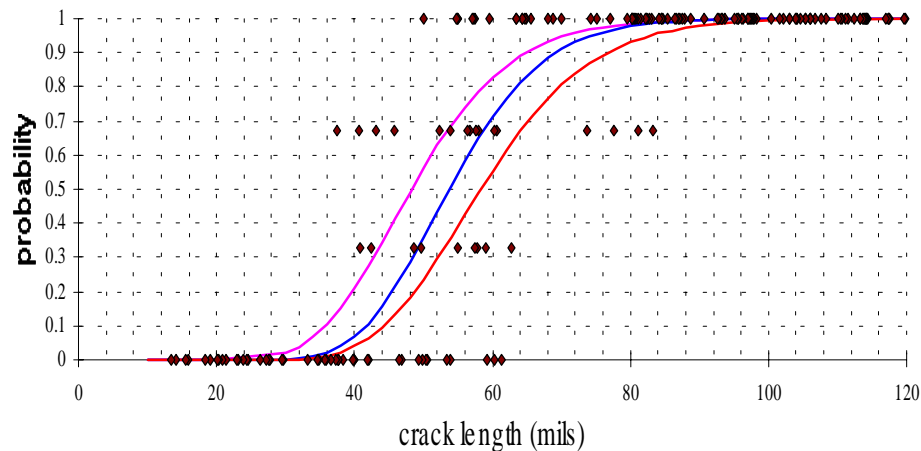


Digital Radiography (X-Ray)  
Low Frequency Eddy Current Array POD & Training  
Wing Skin Inspection Using MAUS  
AF Wide NDI Working Group Meeting

AF, ANG, AFRC, AFRL, F-15  
AF NDI Personnel  
B-52, KC-135, E-3  
AF NDI Personnel



# Probability of Detection (POD)



## Description/Purpose

- Quantify AF NDI capabilities, confidence and reliability of NDI performance.
- Develop AF Protocol for performing all POD studies in the future.

## NDIO Efforts

- Evaluating past AF and other efforts
- Conducting human factor surveys

## Benefits

- Performance capabilities of various NDI personnel with various equipment
- Provides a tool for validation and management of NDI system performance and for the development of qualification of NDI personnel



# Field Assessments



## Description/Purpose

- 200 NDI Labs worldwide
- Assess Lab's business practices based on T.O. 33B-1-1

## NDIO Efforts

- 35 labs assessed in FY00, 35 projected for FY01
- Maintain current T.O. 33B-1-1



## Impact:

- Radiation survey's conducted by base Bio-environmental identified to USAF Bioenvironmental at Brooks AFB to ensure all field labs are getting the same level of survey
- Exposure books will be standardized in the next 33B revision
- Equipment short falls identified
- Non centrally procured equipment identified



# AF ACO FY00 Programs



Objective	Activity	Customer
<b><i>Provide Engineering Assistance</i></b>		
	Repair Facility Reviews	ANG, F-22 SPO
	Establish Technical Repair Center	OO-ALC, B-2 SPO
	C-17 Composite Horizontal Stab Repair	AMC
	Composite Replacement Candidates	MAPA
	C-5 Floor Panels	C-5 SPO, WR-ALC
	Skeleton Sled for AF Olympians	AF PR
	T-38 Radome Repair	NASA
<b><i>Manage TO 1-1-690, General Advanced Composite Repair</i></b>		
	Technical Order re-write	All AF
<b><i>Support and Provide Advanced Composite Training</i></b>		
	Computer Based Training, Basic Composite Class	All AF
	Onsite Classes	OC-ALC, ASC/EN
	C-17 Composite Repair Training Program	AMC, C-17 SPO
<b><i>Support Advanced Composite Health &amp; Safety Issues</i></b>		
	HAMMER IPT	All AF
<b><i>Technology Transfer &amp; Interchange</i></b>		
	Applique Patterns	C-130 SPO, CTIO
	Test Laser Tracker/CAD Transfer	All AF
	Thermal Damage of Composites	F-22, B-2, JSF
	AUSS Ultrasound Upgrade	OO-ALC



# HAMMER IPT



- **Hazardous Aerospace Materials Mishap Emergency Response IPT**
  - Chartered by SAF/MIQ
  - **Mission:** Address safety and health issues related to AF aerospace vehicle mishaps
- **Problem**
  - No standardized policy, procedures, training
  - No agreement on health effects of exposure to composite fibers
- **ACO Efforts**
  - Plan composite burn testing, compose/edit report
  - Conduct advocacy briefings
  - Coordinate training efforts
  - Early 90's, Created Mishap Risk Control Guidelines and Mishap Response checklist which is serving as a base line.
- **Goals**
  - Ensure procedures are in-place to protect personnel from safety/health hazards associated with aerospace vehicle mishaps





# Repair Facility Reviews



- Many new composite repair facilities being built or planned
  - B-1B Georgia ANG Robins AFB
  - F-22 composite backshop at Edwards AFB
  - F-22 LO/Composite repair at Tyndall at 60% Design Review
  - CV-22, ANG, OO-ALC



- Many questions about appropriate facilities
  - ACO creating composite facility guideline
  - Correct Specs.& Standards researched
  - Majority of Customers ask “Explosion Proof?”



# AF CTIO FY99/00 Projects



<b>Objective</b>	<b>Activity</b>	<b>Customer</b>
<b>Assessment</b>		
	OC-ALC VOC Advisory	AFMC/CEVV
	Self-Etch EA Primers	AFMC/CEVV A-10
	JG-PP Support Equipment Coating	AFMC/LG JG-PP
	Depaint Baseline	AFMC/CEVV
	Handheld Energetic Paint Stripper	AFMC/CEVV JG-PP
<b>Integration</b>		
	Waterborne Primer Improvements	AFMC/CEVV
	Applique	AF
	Advanced Performance Coating	AFMC/CEVV
	Chemical Agent Resistant Coating	ESTCP
	Zero VOC Topcoat	AFMC/CEVV
	Dry Media --T1A & JPATS	ASC/YK
	Optimization of Application Eq. & Processes	AFMC/CEVV
<b>Field Support</b>		
	Columbus AFB noncuring coatings	AETC
	Barksdale AFB B-52 Radome paint cracking	ACC
	Depaint Engineering Qualification Plan	AF



# Depaint Engineering Qualification Plan



- Requirements to be used in the evaluation of materials and processes for stripping organic finishes from Air Force aircraft
- Aerospace Standard community established Paint Stripping Task Force in December 1990. Did not put out SAE MA 4872 until March 1998
- Working to review EQP and MA 4872 to provide AF clear guidance on how to bring on new materials and processes for stripping aircraft
- Impact:
  - Users will have disciplined method to evaluate performance of new products
- Cost Savings:
  - Standardization of measuring paint stripper performance reduces duplication of effort by individual ALCs and bases in evaluation new materials and processes



# AMARC Applique Initiative



- The paint is peeling on the composite horizontal stabilizer of F-16s in storage at AMARC facility and the material is degrading
- AMARC has severe environmental restriction on painting
- Initial application of test material successful
- Impact
  - AMARC can protect assets until transferred to foreign sales or final disposition
  - CTIO will monitor material for weathering performance
- Cost Savings
  - Definitive numbers depend on final disposition of assets.



# Summary



- **Ensure AF has & maintains viable sustainment program in the areas of Corrosion Prevention & Control, Nondestructive Inspection and Advanced Composites**
- **Engineer (Integrate) new coatings systems, processes and equipment into new aircraft coating system capability**
- **Aligned under Materials & Manufacturing Directorate, AFRL/ML**
- **Operating locations placed at ALC's**
  - **AF Advanced Composites Office, Ogden ALC**
  - **AF Non-destructive Inspection Office, Oklahoma City ALC**
  - **AF Corrosion Prevention & Control Office, Warner Robins ALC**
- **Provide engineering assistance/guidance to ALC's, MAJCOM's and field units**
- **Presently funded to provide AF wide assistance**